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**FACULTY WORKING
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Is There a Hole in the AMT Net?

David A. Ziebart
Thomas C. Omer

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Is There a Hole in the AMT Net?

David A. Ziebart, Assistant Professor
Department of Accountancy

Thomas C. Omer, Assistant Professor
Department of Accountancy

We appreciate comments provided by Jon Davis, Karen Hreha, and Sara Reiter on earlier drafts of this paper. The normal disclaimer applies.

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ABSTRACT

The Tax reform Act of 1986 revised the corporate AMT and explicitly linked corporate taxation to financial accounting "Book Income". Congress added the book income adjustment to eliminate highly publicized instances in which corporations with substantial book income have not paid tax. The potential impact of this new law on financial reporting may overshadow its expected revenue generation benefits. Our results indicated that the new AMT 1) will affect a greater number of firms than intended by Congress, and 2) may have little impact on "abusive firms."

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IS THERE A HOLE IN THE AMT NET?

Introduction

The 1986 Tax Reform Act contained a new alternative minimum tax (AMT) for corporations. This new tax arose from a perception on the part of taxpayers and policy makers that some U.S. corporations do not pay their fair share of income taxes. These asserted "abusers" report high levels of income for financial reporting purposes to their stockholders but pay little, if any, income taxes to the federal government. The AMT, which contains a new book income adjustment, was devised by Congress to snare these "abusers" of the corporate income tax system. However, both the AICPA and FASB expressed their opposition to the book income adjustment item because of its potential effect on financial reporting. The accounting profession questioned the propriety of linking tax policy to financial reporting policies.

In order to evaluate the new law, the benefits of the new law must be considered contemporaneously with the additional social costs associated with the corporate reactions to the new minimum tax. As corporations seek to rearrange their asset and capital structures to avoid or reduce the effect of this new law, they may exert greater pressure to alter Generally Accepted Accounting Principles

(GAAP) for reasons other than adequate representation of accounting information. Explicitly linking the computation of taxable income to financial statement income may produce social costs which far outweigh the expected benefits of the new AMT. In addition to its impact on financial reporting, the new AMT may unfairly tax the economic profits of the firm. The new AMT lacks any provision that would prevent a corporation from paying AMT on economic profit which had been fully subject to regular tax. For example, this result may occur if any significant expense is recognized in one year under financial accounting rules but the corresponding deduction is deferred until a later year. Given the intent of Congress, evidence regarding the following question needs to be examined: Is the new AMT, with its book income adjustment, an effective means of increasing the probability that a tax abusing firm will pay additional taxes? This study addresses that question.

Lucke, Eisenach, and Dildine (LED) [1986] investigate corporate attributes that increase the probability of paying additional taxes under the new AMT. Their analysis simulates prototype firms in the retail, durable, non-durable manufacturing, and air transportation industries. Their results outline various firm characteristics that increase the probability of a firm paying additional tax under the new tax. They conclude that the set of firms that pay the new AMT is much broader than Congress's original intent.

Although LED suggest that the AMT will impact a broad range of firms, they provide no insight as to its effectiveness in taxing "abusing firms".

This study extends LED's results using actual corporate information from publicly available financial statements. Using a model based on LED's firm characteristics, we provide evidence that the new tax may not capture abusing firms and greatly impacts non-abusing firms. If the new law, with its book income adjustment, is not effective in taxing the "abusing firm", policy makers should reconsider its appropriateness in light of the social costs that may result. Corporations will probably exert pressure on regulatory agencies to modify financial reporting methods such that they are more congruent with tax reporting methods or utilize methods for financial reporting purposes which are detrimental to adequate financial reporting.

This study contributes to our understanding of the impact of the AMT on corporations in three ways. First, we develop a measure that indicates a firm's "abuse status." Congress and the taxpaying public has identified "tax abusing" corporations as those firms that report significant accounting profits while reporting little or no taxable income. In discussing the motivation for the AMT, the Joint Committee on Taxation [reference] stated that " ... in order to achieve both a real and apparent fairness, Congress concluded that there must be a reasonable certainty, that whenever a company publicly reports significant earnings, that company will pay some tax for the year" (emphasis added). Our measure of "abuse status" is based on the difference between income reported to stockholders and taxable income and this measure can be computed from publicly available financial statement data.

Second, this study integrates the results from the modeling by LED with actual data for firms in the economy. Since actual income tax data is not available, simulation studies such as LED's study provide initial insights as to the effect of new policy decisions. However, it is necessary to extend those initial insights using publicly available financial data in order to assess the actual consequences of the new policy.

Third, since the AMT may introduce additional social costs that outweigh the perceived revenue benefits, this study provides some insights into the extent to which those benefits may be forthcoming. If the AICPA and FASB are correct about the potential harm to financial statement reporting and the tax is not successful in capturing "abusers", then policy makers should consider other tax alternatives to address the perceived abuse problem. Evidence provided by this study suggests that the AMT may have only a minor impact on corporations who are considered tax abusers.

Our results suggest that as the probability of being an abusing corporation increases, the probability of paying the AMT does not correspondingly increase. A prediction model based on LED's simulation results provides partial support for using the firm attributes identified by LED to discriminate between firms that are most likely and least likely to be tax abusers. However, the prediction model discriminates between "abusers" and "non-abusers" only marginally better than a naive model that selects firms based on the percentage of firms labelled abusing and non-abusing in the sample. Accordingly, assuming LED's simulation results are valid, the probability of paying additional tax under the AMT is not highly correlated with the probability of being a tax abuser.

The remainder of this paper is organized as follows. Section two provides a description of our measure of "abuse status". Section three provides a review of the LED study and outlines their suggested characteristics of firms that will be snagged by the AMT. Section four provides a description of our results while a summary and our conclusions are contained in section five.

Measure of "Abuse Status" and Sample of Firms Analyzed

The intent of Congress in developing the alternative minimum tax was "to ensure that no taxpayer with substantial economic income can avoid significant tax liability..."[Joint Committee on Taxation, p. 432]. The problem Congress tried to address arose from the public's perception that many major corporations are able to report significant book income, pay dividends to their stockholders, and yet pay little or no income taxes. The Joint Committee [p. 433] noted that "The ability of high-income taxpayers to pay little or no tax undermines respect for the entire tax system.... Even to the extent that these instances may reflect deferral, rather than permanent avoidance, of corporate tax liability, Congress concluded that they demonstrated a need for a change".

Identification of firms which are tax abusers could ideally be accomplished using corporate tax returns and publicly available financial statements. With both of these information sources, identifying abusing firms would only require comparison of reported taxable income and reported financial income. Using Congress's definition of abuse, firms with large differences between these two income numbers would be classified as abusive. Unfortunately, taxable income is proprietary information and not readily available. However, there exists information in the reported financial statements that may allow an estimate of the size of that difference and ultimately indicate the firm's "abuse status".

Corporations are required to separately disclose the provision for taxes on reported book income deferred until future periods. An analysis of the change in the deferred taxes account reported on the balance sheet relative to the amount of income reported to stockholders provides an indicator of the proportion of current period financial statement income on which tax payments are deferred into the future. For example, if a firm has no change in the deferred taxes account, it has no timing differences and is paying taxes that approximate the statutory rate on book income before credits. However, a firm that shows an increase in deferred taxes is paying less than the statutory rate on book income in the current year since some of the taxes are being deferred for payment in the future. For this study, the change in the deferred taxes account divided by book income before income taxes is the measure on which the "abuser status" indicator is based.

In this study, we focus on 1986 corporate annual financial statements for two reasons (1) many 1987 financial reports are not currently available, and (2) 1987 financial reports would represent accounting income after firms may have attempted to minimize the book income adjustment. Thus, the 1987 reports would not be an adequate picture of an abusing firm as perceived by policy makers and the taxpaying public. While the 1986 financial reports should reasonably represent a corporation's "abuser status" before the tax reform, firms' expectations regarding passage of the new AMT may have prompted them to alter their 1986 financial reports in preparation for additional adjustments in 1987. However, since regulations explaining the new law were not issued until March 1987 [Federal Register, 1987], few firms would have been able to accurately predict the effects of the new law in 1986. If firms altered their 1986 financial statements, a bias against finding any results consistent with the results of LED's simulation is present.

All non-regulated industry firms on the Compustat Data Base were searched to determine those for which the requisite data needed for this study were available. Firms with negative deferred tax balances (an asset) or negative book income were excluded from our sample. This resulted in an initial sample of 952 firms.

The ratio of the change in the deferred tax liability to book income before taxes was computed for the initial sample of firms. Note that this measure may be somewhat imprecise since the deferred taxes account includes both state and foreign taxes. In addition, this ratio can become quite large as book income approaches zero. This could result in firms deferring taxes at greater than the statuatory rate of 46 percent. However, for most firms the domestic federal income tax is the major component of deferred taxes.

Firms with a high ratio deferred a higher relative portion of taxes on book income to future periods. Given the statutory rate of .46, a firm that deferred all of its taxes, based on the current book income reported to stockholders, would have a ratio of .46. The firms were then sorted in descending order based on this ratio. From this listing, firms in the top quartile and within the general industry classification used by LED (165 corporations), were designated as "abusers" while a group of 190 firms, in the same industries, that had little or no change in deferred taxes were designated to be "non-abusers". Summary statistics regarding the ratio of the change in deferred taxes relative to book income are presented in Table 1.

INSERT TABLE 1

These two groups reasonably exemplify the "abusers" and "non-abusers" since the "abuser" group, on average, increased deferred taxes by 51 percent of book income, whereas the "non-abuser" group had a mean increase in deferred taxes of only one percent. The "abusers" tended to defer most of the computed tax on income reported to stockholders. In addition, given that the average for the "abuser" firm group had a ratio much greater than 46%, the statutory rate, some of the corporations may have reported a profit to their stockholders and a loss to the Internal Revenue Service. Additional evidence regarding the validity of this ratio to measure "abuser status" is that Citizens for Tax Justice [1985] identified some of the firms included in the "abuser" group as corporations that paid no taxes or received a refund during 1982-1984.

Suggested Attributes of Firms paying the New AMT

Lucke, Eisenbach, and Dildine [1986] determined that firms paying the new AMT will have the following characteristics:

1. Higher Debt
2. Higher Growth
3. Lower Profit

The reasons outlined by LED for linking payment of the AMT to these firm characteristics are the following. Firms with higher debt will be more likely to pay the AMT because larger interest payments reduce taxable income and as a result the book income adjustment will tend to be greater in proportion to taxable income. Firms that are growing are more likely to pay the AMT because of the large depreciation preference generated. Less profitable firms will be more likely to pay because taxes on taxable income will not increase as fast as taxes under the AMT even though regular tax rates are higher. Profitable firms will be less likely to pay taxes under the AMT because the regular tax will increase faster as taxable income increases.

For this study, the debt to equity ratio is used to measure the debt characteristic. This ratio is computed as total debt divided by total stockholders' equity. The financial statement item chosen to represent profitability in our analysis is income before taxes. Growth is measured by (1) the average change in sales over the ten years prior to 1986, and (2) the average change in book income before taxes over the ten years prior to 1986. Descriptive statistics for the total sample of 952 firms, the "abuser" group, and the "non-abuser" group are provided in Table 2.

INSERT TABLE 2

For these two groups, the average debt to equity ratio is larger for the abuser group. The abuser group also, on average, is less profitable and has experienced lower growth in both sales and profits. However, a simple statistical comparison of the means indicates no significant differences between the "abuser" and "non-abuser" groups. These statistical results are not consistent with the results from LED's simulation where firms with high debt, low profitability, and high growth were more likely to be subject to the AMT. This can be attributed to the large variation among the firms in the two groups on these attributes.

Predictive Model and Analysis

The results of LED's analysis indicates several firm characteristics that increase the probability of paying the new AMT. A model developed from LED's analysis is represented as follows:

$$P(AMT)_i = \alpha + \beta_1 G_i + \beta_2 P_i + \beta_3 D_i + e_i$$

Where:

$P(AMT)_i$ = Probability that firm i pays the new AMT;

G_i = Growth of firm i;

P_i = Profitability of firm i;

D_i = Debt/Equity of firm i;

e_i = error term.

Congress expects the new AMT to be effective if there is a "reasonable certainty" that firms who report substantial economic income pay some additional tax. Thus, Congress is attempting to insure that corporate tax abusers pay some tax under the new AMT even though their regular tax liability may be zero. In other words, Congress is attempting to increase P(AMT|Abuser), the probability that the AMT will be paid given that the firm is a tax abuser. If the new AMT is effective in snaring abusers, we expect that P(ABUSER) to be highly correlated with P(AMT). Consequently, we examine this relationship by analyzing how well the factors that determine P(AMT) also determine P(ABUSER). For this, the following model is utilized:

$$P(ABUSER)_i = \alpha + \beta_1 G_i + \beta_2 P_i + \beta_3 D_i + e_i$$

Where:

$P(ABUSER)_i$ = Probability that firm i is a tax abuser as defined by Congress;

G_i = Growth in Sales of firm i;

P_i = Profitability of firm i;

D_i = Debt/Equity of firm i;

e_i = error term.

Although our abuse measure is continuous, the dichotomous representation described in Section 2 is used. P(ABUSER) equals 1 if the firm is classified as an abuser and 0 if the firm is in our non-abuser group. Using a dichotomous dependent variable introduces problems which preclude the use of a standard Ordinary Least Squares (OLS) regression analysis. Since E(P(ABUSER)) is the probability that the ith firm is a tax abuser, it must range from 0 to 1. A standard OLS regression model will predict uninterpretable values from minus to plus infinity. To overcome this problem, a LOGIT analysis which specifically accounts for the limits of the dependent variable is used.

The results of the LOGIT analysis conducted on 355 abusing and non-abusing firms (the two groups previously described) is presented in Table 3.

INSERT TABLE 3

The results provided in Table 3 indicate that the overall prediction model is statistically significant and it predicts marginally better than a naive model that selects firms based on the frequency of each type (Abuser, Non-Abuser) in the sample. The estimated coefficients for debt and profit have the predicted sign; however, only the coefficient for debt is significant. These results, reported in Table 3, provide partial support for the results of LED's simulation analysis. However, note that a greater percentage of abusing firms are misclassified than non-abusing firms. This indicates that the model errs on the side of allowing abusers to go untaxed. This result is extremely important given that the model estimation reported in Table 3 is biased in favor of correctly classifying abusing and non-abusing firms. This bias toward correct classification is due to the actual distribution of corporate taxpayers being unequally divided between abusing and non-abusing firms. To examine this bias, a prediction model is estimated in which only the most extreme abusers (n=36) are included in the analysis. A corporation is considered an extreme abuser if the increase in deferred taxes relative to book income exceeds 46 percent. The results are presented in Table 4.

INSERT TABLE 4

The overall model is statistically significant but the signs and significance of the coefficients have changed. The coefficient for debt has the predicted sign and remains significant; however, the sign of the coefficients for profit, growth in sales, and growth in profit are not in the predicted direction. A naive model that selects firms based on their frequency in the sample would have a prediction rate of 84 percent. Accordingly, the suggestion that the model may not do as well when the distribution of firms in the sample is closer to the true population is supported. This model correctly predicts only 2 of the extreme abuser firms. Consequently, the results suggest that for extreme abusers, P(ABUSER) is not highly correlated with P(AMT). Assuming that LED's analysis is a valid representation of the likelihood of paying the new AMT, these results imply that the new AMT does not adequately address the problem of capturing corporate tax abusers.

Summary

This paper reports the results of an empirical analysis intended to determine if the new Alternative Minimum Tax will have an impact on corporations that fit Congress's description of a "tax abuser". Corporate financial statement information is used to develop a measure of a firm's "abuse status". This measure, based on the difference between income reported to stockholders and taxable income, adequately captures firms that have been publicly labelled as "tax abusers".

Firm characteristics regarding the level of debt, growth, and profitability, found by Lucke, Eisenbach, and Dildine [1986] to predict firms likely to pay the AMT, are tested for their ability to classify firms as "abusers" or "non-abusers". Our results partially support LED's work, the coefficient for the debt/equity characteristic is statistically significant. However, the large number of misclassifications by the model suggests that a firm which is likely to pay the new AMT is not likely to be a tax abuser. The firm characteristics suggested by LED only marginally enable the model to predict abusing and non-abusing firms. This result is particularly striking when we adjust the sample distribution of abusing and non-abusing firms to be closer to the true population and focus on extreme abusers.

Our results suggest that the AICPA and FASB have valid concerns with regard to the impact of the new book income

adjustment on financial reporting. The additional social costs associated with expected changes in financial reporting may be greater than any expected benefits achieved from the attempt to tax abusive firms. Policy makers should consider the additional cost of the AMT given its effectiveness in addressing the perceived corporate "tax abuse" problem. The results of this study suggest that it is highly likely that firms who pay additional tax are not those perceived to be abusers.

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TABLE 1

Summary Statistics for the
Ratio of Change in Deferred Taxes to Book Income

Total Sample		952 firms	
mean	.04	standard deviation	.85
minimum	-11.44	maximum	11.73
"Abusers"		165 firms	
mean	.51	standard deviation	1.16
minimum	.16	maximum	11.73
"Non-Abusers"		190 firms	
mean	.01	standard deviation	.02
minimum	-.03	maximum	.04

TABLE 2

Descriptive Statistics for the Predictor Variables

Total Sample (952 firms)

Firm Attribute	Mean	Standard Deviation	Minimum	Maximum
Debt / Equity	.47	.18	.04	1.89
Book Income Before Taxes (millions)	167.07	561.58	-2200.0	8805.0
Average Sales Growth (millions)	119.25	305.70	- 416.9	3494.6
Average Income Before Taxes Growth (millions)	7.51	39.48	- 676.2	386.9

Abuser Sample (165 firms)

Firm Attribute	Mean	Standard Deviation	Minimum	Maximum
Debt / Equity	.52	.19	.06	1.89
Book Income Before Taxes (millions)	111.33	318.67	.19	1303.0
Average Sales Growth (millions)	94.00	162.43	- 74.8	916.44
Average Income Before Taxes Growth (millions)	4.37	14.29	- 57.1	71.73

TABLE 2 CONTINUED

Non-Abuser Sample (190 firms)

Firm Attribute	Mean	Standard Deviation	Minimum	Maximum
Debt / Equity	.42	.17	.09	.93
Book Income Before Taxes (millions)	189.68	704.64	-2200.0	8805.0
Average Sales Growth (millions)	117.32	369.58	- 416.9	3387.6
Average Income Before Taxes Growth (millions)	8.65	36.33	- 271.8	333.0

TABLE 3

Cross-sectional Logit Regression

Variable	Coefficient	Predicted Sign	T-Ratio
D	3.3007	+	4.7258
P	-0.12511E-03	-	-0.3031
G1	0.13052E-03	+	-0.1942
G2	-0.29814E-02	+	-0.4308
Constant	-1.63548	?	-4.7532

Likelihood Ratio Test = 28.4817 4 D.F.
Prediction Success = 0.6338

Classification by Sample

	Actual	
	Non-Abuser	Abuser
Non-Abuser	140	80
Abuser	50	85

Legend

D = Debt/Equity.
P = Book Income.
G1 = Average Change in Sales for 10 years.
G2 = Average Change in Profit for 10 years.

TABLE 4

Cross-sectional Logit Regression Based on Extreme Abusers

Variable	Coefficient	Predicted Sign	T-Ratio
D	4.5512	+	3.9773
P	0.47290E-03	-	0.8629
G1	-0.16021E-02	+	-1.9775
G2	-0.82062E-02	+	-0.9748
Constant	-3.7748	?	-6.4473

Likelihood Ratio Test = 20.3774 4 D.F.
Prediction Success = 0.84071

Classification by Sample

	Actual	
	Non-Abuser	Abuser
Non-Abuser	188	34
Abuser	2	2

Legend

D = Debt/Equity.
P = Book Income.
G1 = Average Change in Sales for 10 years.
G2 = Average Change in Profit for 10 years.

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